

CLAIMS: We claim:

1. A method for face modeling, comprising the steps of:
  - (a) capturing a plurality of images for an individual with a single or a plurality of image capturing systems,
  - (b) processing said plurality of images to obtain demographic recognition in said images, and
  - (c) combining said demographic recognition with affine coordinate based mesh adjustment technique for said face modeling.
2. The method according to claim 1, wherein the method further comprises a step for using said demographic recognition based on one face image among said plurality of images to determine an approximate face model.
3. The method according to claim 1, wherein the method further comprises a step for displaying visual feedback about said face modeling.
4. The method according to claim 1, wherein said demographic recognition further comprises gender recognition.
5. The method according to claim 1, wherein said demographic recognition further comprises ethnicity recognition.

6. The method according to claim 1, wherein the method further comprises a step for using affine lines and their slope adjustment, which is proportional to depth of the point, for model estimation.

7. The method according to claim 1, wherein said face modeling further comprises a step for using said affine line properties without the need for calibrating the cameras.

8. The method according to claim 1, wherein said face modeling further comprises a step for using said affine line properties without the need for having continuous video.

9. The method according to claim 1, wherein the method further comprises a step for using said affine line properties for re-projecting a matched pair in two images to a third image, once four facial landmarks are located in all three images.

10. The method according to claim 1, wherein the method further comprises a step for using a single view to crudely model face based on gender and ethnicity and then use anthropometric measures for identification.

11. The method according to claim 1, wherein the method further comprises a step for using multiple views to model said face in the image based on the combination of the demographics and said affine line properties and then use said anthropometric measures for identification purposes.

12. The method according to claim 1, wherein the method further comprises a step for using said combination of said demographics and said affine line properties for face modeling, followed by novel view generation of the face using rendering tools.

13. The method in claim 12, wherein the method further comprises a step for generating training samples to realize an automated learning system for face posture recognition.

14. The method of claim 1, wherein the apparatus further comprises a means for using said combination of said demographics and said affine line properties for said face modeling, followed by novel view generation of the face undergoing non-rigid transformation for the purpose of affect synthesis.

15. The method in claim 14, wherein the method further comprises a step for generating training samples to realize an automated learning system for face posture recognition.

16. An apparatus for face modeling, comprising:

- (a) a single or a plurality of image capturing means directed at said individual,
- (b) a processing means for recognizing said demographics from said plurality of images, and
- (c) a processing means for combining said demographics recognition with said affine coordinate based mesh adjustment technique for said face modeling.

17. The apparatus of claim 16, wherein said processing means further comprises a hardware system consisting of disparate cameras at disparate locations, images from which are used for said face modeling.

18. The apparatus of claim 16, wherein the apparatus further comprises a means for using said demographic recognition based on said one face image among said plurality of images to determine said approximate face model.

19. The apparatus of claim 16, wherein the apparatus further comprises a means for displaying visual feedback about said face modeling.

20. The apparatus of claim 16, wherein the apparatus further comprises a means for using said affine lines and their slope adjustment, which is proportional to depth of the point, for said model estimation.

21. The apparatus of claim 16, wherein the apparatus further comprises a means for using said affine line properties without the need for calibrating the cameras.

22. The apparatus of claim 16, wherein the apparatus further comprises a means for using said affine line properties without the need for having continuous video.

23. The apparatus of claim 16, wherein the apparatus further comprises a means for using said affine line properties for re-projecting a matched pair in two images to a third image, once said four facial landmarks are located in all the three images.

24. The apparatus of claim 16, wherein the apparatus further comprises a means for using a single view to crudely model said face in the image based on the gender and ethnicity and then use said anthropometric measures for identification.

25. The apparatus of claim 16, wherein the apparatus further comprises a means for using multiple views to model said face in the image based on the combination of said demographics and said affine line properties and then use said anthropometric measures for identification purposes.

26. The apparatus of claim 16, wherein the apparatus further comprises a means for using said combination of said demographics and said affine line properties for said face modeling, followed by novel view generation of the face undergoing rigid transformation using standard rendering tools.

27. The apparatus in claim 26, used for generating training samples to realize an automated learning system for face posture recognition.

28. The apparatus in claim 27, wherein the apparatus further comprises means for coding video streams of face images where the face undergoes rigid motion only.

29. The apparatus of claim 16, wherein the apparatus further comprises a means for using said combination of said demographics and said affine line properties for said face modeling, followed by novel view generation of the face undergoing non-rigid transformation for the purpose of affect synthesis.

30. The apparatus in claim 29, wherein the apparatus further comprises means for generating training samples to realize an automated learning system for face posture recognition.

31. The apparatus in claim 30, wherein the apparatus further comprises means for coding video streams of face images where the face undergoes non rigid motion.